

The CAF Physical Self-Concept Questionnaire in a sample of Chilean students

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Abstract

Introduction. The aim of this study was to verify whether the six-dimension structure of the Physical Self-Concept Questionnaire is maintained with Chilean students, and to assess its psychometric qualities in this population.

Method. One thousand seven hundred sixty-seven students took part in this research, from Central and South Chile; 45.8% were boys and 54.2% girls, with an average age of 18.39 years. Confirmatory factor, reliability and discrimination analyses were conducted.

Results. The results showed that the theoretical model fits the data adequately and that the factor structure is reproduced; the factors are reliable, thus providing further evidence for the validity of the questionnaire model.

Discussion and Conclusions. The Physical Self-Concept Questionnaire has proved to be useful for the assessment of physical self-concept of students in Chile. Furthermore, it appears that there is a higher order structure with second-order factors that would account for the first order factors.

Keywords: physical self-concept, physical ability, strength, physical attractiveness, physical condition

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Cuestionario de Autoconcepto Físico (CAF) en una muestra de estudiantes chilenos

Resumen

Introducción. El objetivo de este estudio es comprobar si se mantiene la estructura de seis dimensiones del Cuestionario de Autoconcepto Físico y valorar sus cualidades psicométricas con alumnado chileno.

Método. Han participado 1767 estudiantes, 45.8% chicos y 54.2% chicas, con una edad media de 18.39 años, procedentes de las regiones centro y sur de Chile. Se han realizado análisis factoriales confirmatorios, de fiabilidad y de discriminación.

Resultados. Los resultados obtenidos muestran que el modelo teórico se ajusta adecuadamente a los datos y que se reproduce la estructura factorial propuesta, siendo los factores fiables, lo que es una prueba de la validez de constructo del cuestionario.

Discusión y Conclusiones El Cuestionario de Autoconcepto Físico se muestra útil para la evaluación del autoconcepto físico del alumnado de Chile. Además, parece que existe una estructura de orden superior con factores de segundo orden que darían cuenta de los de primer orden.

Palabras Clave: autoconcepto físico, habilidad física, fuerza, atractivo físico, condición física

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Introduction

Psychology, as a science that studies behavior, has always paid attention to *self-concept* as a variable of interest in explaining the behavior of human beings. Self-concept refers to people's notions and opinions about themselves; it proves to be a good indicator of psychological health (Esnaola, Goñi & Madariaga, 2008) and a large predictor of academic performance (Castejón & Miñano, 2010; Miñano & Castejón, 2011). Early research results were contradictory, due to the initial global, unidimensional notion of self-concept (Burns, 1979; Fitts, 1972). After the work published by Shavelson, Hubner and Stanton (1976), self-concept took on a multidimensional and hierarchical nature. According to several authors (Castejón & Miñano, 2010; González-Pienda, Núñez, González-Pumariega & García, 1997; Sampascual, 2007), self-concept is multidimensional because different self-perceptions are organized along specific dimensions, and it has a hierarchical structure because the general dimensions are subdivided into more specific domains such as social, academic, family, personal and physical.

This study focuses on *physical self-concept*. Even though it has traditionally been considered an important component of self-concept (Esnaola et al., 2008; Esnaola & Revuelta, 2009), it had not been studied as such until the end of the 1980s (Fox, 1988; Fox & Corbin, 1989). Physical self-concept is a configuration of one's ideas, beliefs, and perceptions of self in the physical aspect, including skill, strength, attractiveness, physical condition, sports competence, etc. (Esnaola & Revuelta, 2009). Two models of the multidimensional nature of the physical self-concept stand out. On one hand, the four sub-domain model by Fox and Corbin (1989) establishes that physical self-esteem is subdivided into sports competence, body attractiveness, physical conditioning and physical strength. On the other hand, the model by Marsh, Richards, Johnson, Roche and Redmayne (1994) indicates that physical self-perception has nine components: physical activity, coordination, body fat, health, sports competence, strength, physical appearance, endurance and flexibility. Additionally, there are other ways to configure its dimensions, such as those suggested by Franzoi and Shields (1984), who distinguish three dimensions (physical ability, physical appearance and weight control behaviors); Bracken (1992), who establishes four dimensions (physical competence, physical appearance, physical shape and health); and Sonstroem (1984), who isolates multiple components (height, weight, constitution, attractiveness, strength, etc.). The most widely accepted structure for physical self-concept as a dimension of self-concept is that proposed by Fox and Corbin

(1989), taking into account the dimensions of sports competence, physical condition, physical attractiveness and strength (Asci, Asci & Zorba, 1999; Goñi & Ruiz de Azúa, 2009).

Physical self-concept has been related to the risk of suffering eating disorders (Rodríguez & Esnaola, 2009); to psychological well-being, physical activity and healthy lifestyles (Rodríguez, Goñi & Ruiz de Azúa, 2006; Reigal, Videra, Parra & Juárez, 2012); to success expectations, to the perceived value and perceived difficulty of physical activity (Esnaola & Revuelta, 2009); to the practice of sports (Contreras, Fernández, García, Palou & Ponseti, 2010; Reigal, Videra, Márquez & Parra, 2013); to media influence (Ruiz de Azúa, Rodríguez & Goñi, 2005); and to physical sports activity, motivation and life satisfaction (Goñi & Infante, 2010; León, Núñez, Domínguez & Martín-Albo, 2012). Furthermore, it has been studied throughout the life cycle (Esnaola, 2008; Goñi, Rodríguez & Esnaola, 2010; Molero, Zagalaz-Sánchez & Cachón-Zagalaz, 2013), where differences can be established as a function of age, gender, body mass index and sports activity (Goñi, Ruiz de Azúa & Rodríguez, 2004; Rodríguez et al., 2006).

As for assessing physical self-concept, some questionnaires that evaluate self-concept as a whole contain a subscale for assessing physical self-concept, such as the Tennessee Self Concept Scale (Fitts, 1965), the Piers-Harris Children's Self Concept Scale (Piers, 1976) or the AF5 (García & Musitu, 1999). Other scales and questionnaires specifically assess physical self-concept; the most widely used are the Physical Self-Concept Scale, by Richards (1988), the Physical Self-Perception Profile (PSPP) by Fox and Corbin (1989), the Physical Self-Description Questionnaire (PSDQ) by Marsh et al. (1994), and its reduced version (PSDQ-S) by Marsh, Martin and Jackson (2010), and the Children and Youth, Physical Self-Perception Profile (CY-PSPP) by Whitehead (1995).

In the Spanish language, one of the most widely used instruments is the *Cuestionario de Autoconcepto Físico* (CAF) [Physical Self-Concept Questionnaire] by Goñi, Ruiz de Azúa and Rodríguez (2006). This questionnaire came about in response to technical limitations and drawbacks seen in the translation of the CY-PSPP (Goñi et al., 2006), and it has been applied in different contexts (Fernández, Contreras, García & González, 2010; Infante & Goñi, 2009; Goñi & Infante, 2010; Molero, Ortega, Valiente & Zagalaz, 2010; Revuelta & Esnaola, 2011; Soriano, Navas & Holgado, 2011), showing high levels of reliability and validity with students from Secondary Education to University (Goñi et al., 2006), and with other adults (Goñi

et al., 2010). In addition to assessing the four dimensions of physical self-concept, it also evaluates general self-concept and general physical self-concept. The questionnaire was developed using the three-level hierarchical and multidimensional model from Fox and Corbin (1989). At the highest level is general self-concept, at the intermediate level is general physical self-concept, and at the lowest level are the different subdomains of physical self-concept (physical condition, sports competence, physical attractiveness and strength – although the CAF authors substitute the name physical ability for sports competence).

Thus, the CAF is made up of the following sub-scales (Goñi et al., 2010; Goñi & Ruiz de Azúa, 2009; Rodríguez et al., 2006; Ruiz de Azúa, 2009): 1) Physical ability (perceived skill in practicing sports, ability to learn sports, personal safety in sports and predisposition to sports); 2) Physical condition (physical condition and being in shape, physical energy and endurance, confidence in one's physical state); 3) Physical attractiveness (self-perception of one's physical appearance, security and satisfaction with one's image); 4) Strength (feeling strong, able to lift weight, feeling secure with exercises that require strength, and predisposition toward doing such exercises); 5) General physical self-concept (positive sensations – happiness, pride, satisfaction, confidence – in the physical aspect), and 6) General self-concept (satisfaction with oneself and with life in general).

In Chile, studies have been carried out with the Tennessee Self Concept Scale (Fitts, 1965, adapted by Atallat, 1990; e.g. Denegri, Opazo & Martínez, 2007), with the Piers-Harris Children's Self Concept Scale (Piers, 1976, adapted by Gorostegui, 1992; see Villarroel, 2002), with the AF5 (García & Musitu, 1999, adapted by Véliz, 2010; see the studies from Droguett, 2011; Riquelme & Riquelme, 2011; Véliz & Apodaca, 2012a, 2012b) and with the Physical Self-Description Questionnaire Short-form (Marsh et al., 2010; e.g. Espinoza, Rodríguez, Gálvez, Vargas & Yáñez, 2011). However, there are few research studies that make use of the CAF, by Goñi et al. (2006), which has the advantage of not having been translated.

Objective

The norms for developing instrument studies have been established, as well as those for adapting tests to a different culture (Carretero-Dios & Pérez, 2005; Muñiz, Elosua & Hambleton, 2013); in order to meet the guidelines for confirmation, the items must be analyzed statistically and the dimensionality of the instrument must be studied. Therefore, the

purpose of this study is to analyze the psychometric properties of the CAF and equivalence of the factor structure (Goñi et al., 2006) with Chilean students. Consequently, the objective of this paper is to verify whether the CAF factor structure proposed by Goñi and Ruiz de Azúa (2009) is obtained in a sample of Chilean students, and to analyze its psychometric properties to determine whether the instrument is reliable and valid with students from Chile.

Method

Participants

The participants were 1787 students (45.8% men and 54.2% women), between the ages of 11 and 50 years ($M = 18.39$; $SD = 4.44$). Of these, 14.6% were enrolled in primary education, 34.5% in secondary education, 47.2% were university students and the remaining 3.7% were taking vocational training. All the students were from towns located in central or southern Chile (15% from the Santiago metropolitan area, 3% from the Coquimbo region, 13% from the region of the Valparaíso, 1.3% from the region of Libertador General Bernardo O'Higgins, 16% from the Maule region, 42% from the Bío Bío region, 1% from the Araucanía region, 7.7% from the Los Lagos region, and 1% from the Magallanes region), and were selected by incidental sampling. The sample size, according to Arkin and Colton (1962), guarantees a sample error of less than $\pm 3\%$, with a confidence level of 95% ($p = .5$).

Instrument

The questionnaire used was the *Cuestionario de Autoconcepto Físico* [Physical Self-Concept Questionnaire] (CAF), by Goñi et al. (2006). The questionnaire is composed of 36 items that are rated on a 5-point Likert scale, where 1 means *false* and 5 means *true*.

1) The *Physical Ability* dimension contains the items 1, 6, 17, 23, 28 and 33, which express ideas such as “I don't have the right qualities for doing sports” or “I see myself as awkward in sports activities”, and they represent the perception of one's ability to practice sports ($\alpha = .84$).

2) The *Physical Condition* dimension ($\alpha = .88$) is made up of items 2, 7, 11, 18, 24 and 29, which express ideas such as “I have a lot of physical energy” or “I can run and exercise for a long time without getting tired”, and they relate to confidence in one's physical state and to the self-perception of endurance for carrying out intense physical activities.

3) The *Physical Attractiveness* dimension includes items 8, 12, 19, 25, 30 and 34, with expressions such as “It’s hard for me to have a nice-looking appearance” or “I feel confident about the physical image that I put across”, referring to the perception of one’s own physical appearance and one’s degree of satisfaction with the image they present to others ($\alpha = .87$).

4) The *Strength* dimension ($\alpha = .83$) is made up of elements 3, 9, 13, 20, 31 and 35, which express ideas such as “I am able to perform activities that require strength” or “I am strong”, and they relate to one’s perception of strength and the ability to carry out activities that require strength (e.g. lifting weight).

5) *General Physical Self-concept* dimension is made up of items 4, 14, 16, 21, 26 and 36, with statements such as “Physically I feel I worse off than others” or “I feel good physically”, and they refer to positive perceptions in the physical aspect, such as satisfaction, confidence, pride, etc. ($\alpha = .86$).

6) Finally, the *General Self-concept* subscale ($\alpha = .84$) contains elements 5, 10, 15, 22, 27 and 32, and expresses ideas such as “I feel happy” or “I would like to be different”, and assess the level to which the subject is satisfied with himself or herself, and with life in general.

On the indirect items (5, 6, 7, 8, 9, 15, 16, 22, 23, 24, 25, 26, 32, 33, 35 and 36), the scale is inverted. The reliability coefficient for the total questionnaire ranges from .73 to .92 (Ruiz de Azúa, 2009).

Procedure

The questionnaire was administered in the usual classroom, after obtaining informed consent for unpaid participation, either from the participants themselves or from their families in the case of minor age students, and following the bioethics criteria of Chile’s National Commission for Scientific and Technological Research (Lira, 2008). The questionnaire was completed voluntarily, in a group session, but ensuring that classmates did not discuss their answers among themselves. Subjects were instructed on how to respond, as indicated by Goñi et al. (2006); they were asked to be entirely honest, and were guaranteed anonymity and confidentiality of their answers. Some students were excluded from the study for leaving ques-

tions blank, or for not having obtained informed consent from their parents. The final number of participants was 1760.

Statistical analyses

A basic correlational design was used. We carried out descriptive analyses, confirmatory factor analysis (CFA) of the structure proposed by Goñi et al. (2006), reliability analyses and a second-order factor analysis.

Results

Table 1 summarizes the results of the descriptive analyses (see the first four columns). Skewness and kurtosis values are found within a range of ± 1.96 , so we infer that the variables have reasonable fit to the normal distribution.

Table 1. Descriptive and reliability analysis of the CAF elements

Variable	<i>M</i>	<i>SD</i>	<i>A</i>	<i>C</i>	α	<i>r_{i-total}</i>
Item 1	3.38	1.22	-0.42	-0.60	.93	.61
Item 2	3.16	1.15	-0.19	-0.66	.93	.62
Item 3	2.67	1.15	0.11	-0.72	.93	.45
Item 4	3.63	1.18	-0.54	-0.53	.93	.64
Item 5	3.69	1.29	-0.60	-0.76	.93	.30
Item 6	3.82	1.26	-0.69	-0.66	.93	.43
Item 7	3.58	1.27	-0.45	-0.87	.93	.48
Item 8	3.39	1.33	-0.31	-1.03	.93	.46
Item 9	3.47	1.26	-0.36	-0.86	.93	.32
Item 10	4.23	1.01	-1.38	1.48	.93	.50
Item 11	3.38	1.23	-0.38	-0.71	.93	.68
Item 12	3.57	1.20	-0.53	-0.56	.93	.65
Item 13	3.68	1.16	-0.55	-0.49	.93	.52
Item 14	3.53	1.21	-0.46	-0.65	.93	.69
Item 15	4.18	1.19	-1.29	0.57	.93	.38
Item 16	3.93	1.27	-0.89	-0.38	.93	.55
Item 17	2.73	1.24	0.14	-0.89	.93	.54
Item 18	2.88	1.27	0.03	-0.95	.93	.60
Item 19	3.44	1.15	-0.35	-0.59	.93	.64
Item 20	2.76	1.29	0.13	-1.05	.93	.55
Item 21	3.66	1.10	-0.52	-0.36	.93	.62
Item 22	3.64	1.45	-0.60	-1.05	.93	.55
Item 23	3.81	1.32	-0.76	-0.65	.94	.28
Item 24	3.41	1.30	-0.33	-0.93	.93	.47
Item 25	3.84	1.31	-0.78	-0.58	.93	.62
Item 26	3.75	1.30	-0.67	-0.70	.93	.60

Item 27	3.77	1.05	-0.66	0.04	.93	.52
Item 28	3.46	1.26	-0.41	-0.81	.93	.61
Item 29	3.49	1.16	-0.36	-0.60	.93	.67
Item 30	3.61	1.16	-0.57	-0.32	.93	.42
Item 31	3.25	1.21	-0.28	-0.74	.93	.54
Item 32	3.95	1.24	-0.87	-0.43	.94	.21
Item 33	3.88	1.24	-0.79	-0.47	.93	.54
Item 34	3.66	1.18	-0.63	-0.36	.93	.46
Item 35	3.21	1.36	-0.15	-1.11	.93	.37
Item 36	3.92	1.26	-0.84	-0.46	.93	.60

The theoretical model of the different CAF dimensions (described under the Instrument section), is submitted to a CFA, using robust, unweighted least squares. Table 2 shows the completely standardized solution.

Table 2. Completely standardized solution of the Goñi et al. model (2006). The lower part of the table shows reliability and discrimination indices for each dimension

<i>Items</i>	<i>Physical ability</i>	<i>Physical condition</i>	<i>Physical attractiveness</i>	<i>Strength</i>	<i>General physical self-concept</i>	<i>General self-concept</i>
1	.82	--	--	--	--	--
2	--	.77	--	--	--	--
3	--	--	--	.70	--	--
4	--	--	--	--	.75	--
5	--	--	--	--	--	.44
6	.57	--	--	--	--	--
7	--	.58	--	--	--	--
8	--	--	.58	--	--	--
9	--	--	--	.46	--	--
10	--	--	--	--	--	.73
11	--	.80	--	--	--	--
12	--	--	.85	--	--	--
13	--	--	--	.80	--	--
14	--	--	--	--	.81	--
15	--	--	--	--	--	.56
16	--	--	--	--	.68	--
17	.73	--	--	--	--	--
18	--	.75	--	--	--	--
19	--	--	.81	--	--	--
20	--	--	--	.85	--	--
21	--	--	--	--	.74	--
22	--	--	--	--	--	.76
23	.39	--	--	--	--	--
24	--	.57	--	--	--	--
25	--	--	.82	--	--	--
26	--	--	--	--	.73	--
27	--	--	--	--	--	.69

28	.82	--	--	--	--	--
29	--	.83	--	--	--	--
30	--	--	.54	--	--	--
31	--	--	--	.79	--	--
32	--	--	--	--	--	.30
33	.71	--	--	--	--	--
34	--	--	.63	--	--	--
35	--	--	--	.53	--	--
36	--	--	--	--	.71	--
α	.78	.83	.82	.80	.84	.68
$r_{i-total}$.54	.61	.59	.57	.61	.42

The following global goodness of fit indices were obtained: $\chi^2_{\text{Satorra-Bentler}} = 3546.26$ ($df = 579$; $p < .05$); REMSEA = .08; GFI = .98; AGFI = .97; CFI = .96; NNFI = .95 and RMR = .08. These results allow us to conclude that the model shows adequate theoretical and empirical fit to the data, such that it is not necessary to add or modify its parameters.

After performing the reliability analyses (Cronbach's alpha internal consistency coefficient) and discrimination analyses (Pearson's r correlation coefficient between the score on each element and the score for the total questionnaire without including that element), the questionnaire total presents $\alpha = .94$ and a mean discrimination index of .52. Table 1 (last two columns) provides the values for each element. The internal consistency indices and mean discrimination indices of each factor are also acceptable (see Table 2, bottom row).

Table 3 provides the matrix of bivariate correlations between the different factors. All the values of Pearson r coefficients are statistically significant ($p < .01$). The first four variables prove to be quite related to each other and there is a strong connection between the last two. This, in conjunction with the theoretical interpretation, indicates that physical ability, physical attractiveness, physical condition and strength refer to specific sub-domains of the physical self-concept, while general physical self-concept and general self-concept are variables found on a higher level of a hierarchy (Goñi et al., 2006; Ruíz de Azúa, 2009), whereby we can propose a second theoretical model (Model 2) comprising two second-order factors. One of these, Factor 1, would explain the first four variables, and Factor 2 would explain the last two.

Table 3. Correlation coefficients between the CAF factors

	PA	PC	PAT	STR	PSELF	GSELF
PA	1					
PC	.90	1				
PAT	.51	.65	1			
STR	.77	.75	.42	1		
PSELF	.65	.77	.99	.53	1	
GSELF	.52	.58	.90	.38	.92	1

Note: PA = Physical ability; PC = Physical condition; PAT = Physical attractiveness; STR = Strength; PSELF = General physical self-concept; GSELF = General self-concept

The completely standardized solution of Model 2 is shown in Figure 1, illustrating the structural model of the theoretical approach that we are examining.

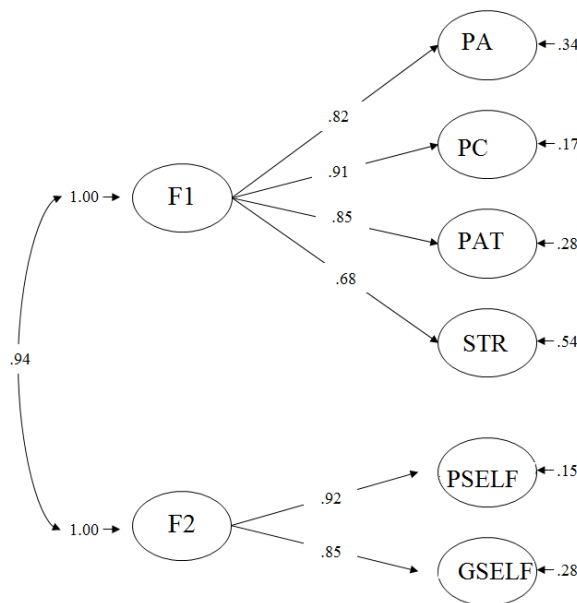


Figure 1. Standardized solution of the Model 2 structural model

Note: PA = Physical ability; PC = Physical condition; PAT = Physical attractiveness; STR = Strength; PSELF = General physical self-concept; GSELF = General self-concept; F1 = Factor 1; F2 = Factor 2

In addition, we calculated the ECVI and CAIC, used for measuring comparative fit between two or more models (better fit is indicated as the values become smaller); they represent a measure of the parsimony of the model by considering the number of parameters, and they indicate the degree to which the model is replicable in other samples (Bandalos, 1993). In Table 4, one can observe that Model 2 also represents the data adequately, there is a signif-

icant increase in χ^2 and the ECVI and CAIC values show that Model 1 is more parsimonious and replicable. Nonetheless, the values of the other fit indices justify the use of Model 2.

Table 4. Fit Indices of Models 1 and 2

Model	RMSEA	GFI	AGFI	ECVI	CAIC	χ^2	<i>df</i>	$\Delta\chi^2$	Δdf
1	.08	.98	.97	4.66	4214.82	3546.2*	579	---	---
2	.08	.93	.92	6.26	5446.27	4846.8*	588	1301	9

Note: *(*p*-value = .000)

Discussion and conclusions

The objective of this study was to analyze the factor structure of the CAF (Goñi et al., 2006) and its psychometric qualities in Chilean students. We tested the six-dimensioned theoretical model proposed by the questionnaire authors. Results obtained on the CFA allow us to assert that the model shows adequate fit to the data, without any need for modifications or additional parameters. In other words, the factor structure obtained with Spanish participants (Fernández et al., 2010; Infante & Goñi, 2009; Goñi & Infante, 2010; Goñi et al., 2006; Molero et al., 2010; Revuelta & Esnaola, 2011; Soriano et al., 2011) is replicated with Chilean students, in addition to confirming the four dimensions and hierarchical structure of physical self-concept, as proposed by Fox and Corbin (1989). This in turn concurs with studies carried out by different researchers (Asci et al., 1999; Goñi et al., 2006; Hayes, Crocker & Kowalsky, 1995; Holgado, Soriano & Navas, 2009; Kosmidou, Proios & Giannitsopoulou, 2013; Kudláček, Kudláček, Kudláček & Kudláček, 2010; Kumartasli, 2013; Lindwall & Jonsson, 2001; Moreno, 1997; Page, Ashford, Fox & Biddle, 1993; Schlegel & Fialova, 2013) in different countries (Turkey, Canada, Spain, Czech Republic, Sweden, Greece and the UK). There are also studies where the CFA produces three dimensions (e.g., Atienza, Balaguer, Moreno & Fox, 2004). It must be kept in mind that most of the studies mentioned were performed using the PSPP, and the CAF differs from this assessment instrument in the following: “a) the conceptual delimitation of the four dimensions; b) the name change from sports competence to physical ability in one of the dimensions; c) the inclusion of new items, and d) the change of format in how the items are written” (Goñi et al., 2010, p. 461).

Furthermore, results from the present study offer empirical support, aside from the factor structure obtained by Goñi et al. (2006), for the construct validity of the CAF. There is confirmation that the theoretical model fits the questionnaire responses, such that we can infer the differentiation between physical ability, physical condition, physical attractiveness and strength in the physical self-perceptions of Chilean adolescents, youth, and young adults.

On the other hand, results from the reliability analysis indicate that the CAF factors are reliable with Chilean students, and, except in the case of general self-concept, there is not much difference between the coefficients obtained in this study and in the study reported by Ruíz de Azúa (2009). For the questionnaire total, the alpha we obtained is even slightly higher than that given by Goñi (2009) in the instrument's technical specification. All this indicates that the CAF is equally reliable with students from Chile.

One of the most important contributions of the present study is its proposal of the second model, which contributes two new variables whose relationship to the hierarchical structure of physical self-concept would be of interest in future research. Specifically, Factor 1 represents how individuals, within their global physical self-perception, establish differentiated, more specific lower-level subdomains (the subdimensions in the lower part of the hierarchy); while Factor 2 refers to more abstract, general self-perceptions on a higher level (the subdimensions in the higher part of the hierarchy), as defended by Fox and Corbin (1989), Goñi et al. (2006) and Goñi and Ruíz de Azúa (2009). This second-order dimensionalization is an aspect to be considered in future research, given that physical self-concept is found to be related to life satisfaction and to perceived health (Videra-García & Reigal-Garrido, 2013).

From a self-critical standpoint, three limitations are present in this study. First, the participants are exclusively from the central and southern regions of the country, presenting a risk if these results are to be generalized. Broadening the sample to those regions that are underrepresented or are not considered in this research is an aspect to be addressed in future studies. The second limitation stems from the assessment instrument itself, which is based on self-reporting and may be biased in the direction of social desirability. The third limitation is the underrepresentation of certain stages of education, which should be increased in subsequent research.

The main practical application of this study is that the CAF can be used as another available questionnaire in school psychological assessments of Chilean students, since it meets the requirements for construct validity and reliability. At the same time, evidence of external validity is still needed, requiring studies that analyze criterion validity (relationships between the test and a predictive criterion), convergent validity (relationships between the test and other tests that measure the same thing) and discriminant validity (relationships between the test and other variables from which it should be differentiated), using samples of Chilean students. Since this task falls outside the objectives of the present study, it remains for future research.

In conclusion, we would highlight the following outcomes: 1) confirmation of the four-dimensioned, hierarchical model of physical self-concept; 2) empirical support for the factor structure determined by the CAF authors; 3) adequate reliability and discrimination indices, despite the contextual and sociocultural differences; 4) evidence for the construct validity of the CAF; 5) two new variables (F1 and F2) that are related to the hierarchical structure of physical self-concept, and 6) the need for further research with Chilean participants in order to overcome the limitations present in this study, and to determine the external validity of the CAF in Chile.

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